DOCUMENT RESUME

ED 169 728 EC 114 589

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TITLE The Role of Hyperactive and Aggressive Symptomatology in Predicting Adolescent Outcome Among Hyperactive Children.
PUB DATE Aug 78
NOTE 24p.; Paper presented at the Annual Meeting of the American Psychological Association (86th, Toronto, Canada, August, 1978)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Failure; Adolescents; *Aggression; Drug Therapy; *Emotional Problems; *Hyperactivity; Learning Disabilities; *Performance Factors; *Social Problems

ABSTRACT

Research regarding adolescent outcome for hyperactive youngsters is reviewed. It is noted that hyperactive adolescents are at risk for a variety of academic, emotional, and societal difficulties which apparently develop regardless of whether the child was successfully treated with medication, even though short term studies have shown syptomatic relief. The authors believe that the reason for the seeming inconsistency is that neither the nature nor the degree of primary symptomatology plays a role in predicting adolescent outcome. It is felt that research effort might be more profitably spent investigating the role of such secondary variables as aggression (rather than concentrating on the effect of drug treatment) and determining whether intervention procedures directed specifically toward childhood aggression would improve the hyperactive adolescent's outcome. (Author/PHR)

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THE ROLE OF HYPERACTIVE AND AGGRESSIVE SYMPTOMATOLOGY IN PREDICTING ADOLESCENT OUTCOME AMONG HYPERACTIVE CHILDREN

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Paper presented as part of a symposium on: "Juvenile Delinquency: Predictors, Prognosis, and Clinical Practice" at the annual meeting of the American Psychological Association, Toronto, Canada, August, 1978.

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Running head: Adolescent Outcome Among Hyperactives

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ABSTRACT

Research regarding adolescent outcome for hyperactive youngsters is briefly reviewed. It is noted that hyperactive adolescents are at risk for a variety of academic, emotional, and societal difficulties which apparently develop regardless of whether the child was successfully treated with medication. This is true despite the fact that in short-term studies stimulant medication repeatedly has been found to alleviate hyperactive symptomatology. The authors believe that the reason for this seeming inconsistency is that neither the nature nor the degree of primary symptomatology (e.g., childhood hyperactivity and inattention) plays a role in predicting adolescent outcome. Thus, research which has concentrated on the effects of (drug) treatment on hyperactivity has little relevance for predicting or explaining adolescent outcome. Instead, those variables often considered as secondary or resultant symptomatology (e.g., aggressivity) have been found to have predictive utility. Research effort might be more profitably spent investigating the role of such secondary variables as aggression and determining whether intervention procedures directed specifically toward childhood aggression would improve the hyperactive adolescent's outcome.

THE ROLE OF HYPERACTIVE AND AGGRESSIVE SYMPTOMATOLOGY IN PREDICTING ADOLESCENT OUTCOME AMONG HYPERACTIVE CHILDREN

Hyperactivity is a childhood behavior disorder which has generated a great deal of public and professional interest over the past several years. This interest is justified in part by the relatively high incidence rates reported in the general population. An estimated 4 to 10 percent of school-age children (primarily boys) are affected, and hyperactivity accounts for approximately 50 percent of childhood behavior disorder referrals (Chess, 1960; Prechtl & Stemmer, 1962; Huessy, 1967; Stewart, Pitts, Craig, & Dieruf, 1966). Further, based on limited findings from the few follow-up studies which have been conducted, it appears that although the symptom of overactivity may diminish with age, a variety of secondary problems develop early, persist across time, and frequently worsen during the teen years, prompting Ross and Ross (1976, p. 54) to describe adolescence as "a period of great difficulty that the (hyperactive) adolescent is ill-prepared to handle." This pessimistic statement appears to be true regardless of whether, or how successfully, a child has been treated with stimulant medication.

Adolescent Difficulties

There is now general agreement that the primary symptoms of hyperactivity,[1] especially overactivity and inattention problems, tend to dissipate with increasing age (Jenkins, 1973). Although hyperactive adolescents are still judged to be more restless and inattentive than their age-mates, these problems are not considered by parents, teachers, or clinicians to be as debilitating as they were when originally identified in childhood (Weiss, Minde, Werry, Douglas, & Nemeth, 1971). It is only recently, however, that researchers have begun to note that adolescence is not the symptom-free period for hyperactives that earlier writers had supposed. Instead, it has become increasingly clear that hyperactive adolescents frequently encounter a variety of secondary problems that can seriously interfere with their successful

adjustment and future well-being. These problems can be classified into three general areas, representing the hyperactive adolescent's academic, social, and emotional adjustments. In the review that follows, research relating to the hyperactive adolescent's adjustment in each of these areas will be considered.

Academic Difficulties in Adolescence

In the elementary grades many hyperactive youngsters show signs of academic difficulties; by adolescence their performance is frequently marked by severe scholastic underachievement. They tend to score at least one or two years behind in reading, spelling, and arithmetic. Concomitant with their scholastic difficulties are behavior problems in the classroom, so that the hyperactive adolescent has a markedly greater likelihood than do his classmates of being expelled from school or of dropping out.

Weiss et al. (1971), in their 5-year follow-up of 64 hyperactive children, found 70% of the sample (compared to only 15% of the controls) to have repeated at least one grade of school, and 35% had repeated two or more grades. Ten percent were in special classes and 5% had been expelled from school. Only 20% of the hyperactives were judged to have made an appropriate academic adjustment.

Minde, Lewin, Weiss, Lavigueur, Douglas, and Sykes (1971), comparing 37 hyperactives with 37 matched controls,[2] found the two groups to differ significantly in the number of grades they had repeated, with 21 (57%) of the former and 6 (16%) of the latter having repeated one or more grades. The hyperactive youngsters were found to be performing more poorly in all school subjects except art and physical education. Borland and Heckman's (1976) hyperactive subjects had significantly lower grades in senior high school than their brothers, although there was no significant difference in regard to successfully completing schooling. Laufer (1971), however, found only 14 of 37 (37%) 19-year-old hyperactives in his sample to have completed high school.

The range of 50 to 60% noted above seems to be a general finding for the proportion of hyperactive adolescents who have repeated one or more grades. Mendelson, Johnson, and Stewart (1971) found nearly 60% of their hyperactive sample to have repeated at least one grade, and nearly 20% had repeated two or more. Similarly, Ackerman, Dykman, and Peters (1977) found 57% of a hyperactive/learning disabled sample to have repeated one or more grades, compared with only 16% of normal controls.

The adolescent follow-up studies generally note hyperactive youngsters to be experiencing greater behavior problems in the classroom than their age-mates. Mendelson et al. (1971) found that teachers considered 60% of the hyperactive sample to be discipline problems, and Wechtman, Weiss, Finklestein, Wener, and Benn (1976) found a significantly greater school expulsion rate for their hyperactive sample than for a control group. Similarly, Huessy, Metoyer, and Townsend (1974) found 16 (21%) of their follow-up sample of 75 to have dropped out of school, compared with an average drop-out rate for the state of only 4%.

Taken together, follow-up studies of hyperactive adolescents consistently find these youngsters to be experiencing severe scholastic difficulties along with behavior problems in the classroom. These factors combine to lead to significantly higher drop-out or expulsion rates, so that the hyperactive adolescent is at risk for not completing high school.

Antisocial Behaviors and Legal Encounters in Adolescence

The hallmark of hyperactivity in childhood is behavior problems in the home and/or classroom, especially difficulties in attending to tasks and remaining seated. During adolescence the behavior problems often move out of the home or classroom and into society at large. This period is frequently noted for aggressive, antisocial behaviors which are occasionally associated with encounters with the police and legal authorities. Unfortunately, follow-up studies in this area are frequently marred by inadequate or missing control groups and poorly defined

terms, making it difficult to determine whether hyperactive adolescents do exhibit more antisocial behaviors than the general adolescent population. Nevertheless, the evidence is suggestive that this is the case, and it is widely accepted as true.

Weiss et al. (1971) found that at follow-up 16 (25%) of their sample of 64 hyperactives had a history of antisocial behaviors, with 10 having already been referred to the courts. Only 2 of the sample had such a history at referral five years earlier. Similarly, Mendelson et al. (1971) found 59% of their sample had had some contact with the police, with 17% having had contact on three or more occasions. Nearly one-third had at least once threatened to kill their parents, while 17% had been found to carry weapons and 15% had set one or more fires. Twenty-two percent of the sample were noted to have had a long history of antisocial behaviors, leading the authors to consider this group potential sociopaths as adults. The behavior problems for the group as a whole were severe enough that 40% of the parents had seriously considered having their child live away from home.

Similar high rates of antisocial behaviors and legal encounters have been noted in other follow-up studies. Stewart, Mendelson, and Johnson (1973) found 37% of their sample admitted to truancy, while 25% admitted to stealing. Laufer (1971) found 16 of 55 (30%) hyperactive adolescents admitted to having had some kind of trouble with the police, although none had been jailed. Ackerman, Dykman, and Peters (1977) found 6 of their sample of 23 hyperactive/LD adolescents to have had recent trouble with school authorities, 2 more were in therapy for family conflicts, and 3 more were in serious trouble with the law. In contrast, only 4% of the normoactive/LD sample and 3% of the controls displayed socially deviant behaviors, leading the authors to conclude that at age 14 hyperactive/learning disabled boys exhibit both academic and behavioral adjustment problems, whereas normoactive/LD boys show only academic problems.

In one of the more discouraging outcome studies Huessy et al. (1974) found 15 (20%) of their sample of 75 to have had serious trouble (undefined) with the law, with 11 (15%) of these being institutionalized by the state corrections department. The expected state rate of institutionalization for delinquent or unmanageable behavior was .5%. In contrast to these pessimistic findings, Hechtman et al. (1976) reported no significant difference between their early adult hyperactives (mean age = 19.5) and controls in regard to police contacts. However, controls did exhibit more drug offenses ($p < .05$), whereas the hyperactives had more theft-related offenses ($p < .1$). This would suggest that although the absolute number of police contacts did not differ significantly between the two groups, controls tended to exhibit victimless crimes, whereas the hyperactives tended to exhibit crimes against others.

As previously noted, many of these studies are marred by imprecise terminology and inadequate or absent control groups. Thus, for example, the term "trouble with the law" is frequently cited as an outcome measure, with no clarification given as to whether this means police contacts, court appearances, convictions, or a wide range of other possible involvements. Similarly, attention is rarely given to the nature, frequency, and severity of the crimes committed, although, as noted, these may be important variables. Finally, the failure to use control groups takes on added importance in studies of self-reported aggressive and extralegal behaviors, since epidemiological studies tend to show relatively high rates of such behaviors among the general adolescent population (Gold, 1966; Polk, 1971). Nevertheless, there is evidence in those studies with adequate control groups or comparison data (Ackerman et al., 1977; Huessy et al., 1974), to suggest that the hyperactive adolescent is more likely than his age-mates to commit crimes against other individuals, resulting in court appearances and possible institutionalization or incarceration.

Emotional Adjustment in Adolescence

Somewhat surprisingly, variables relating to the emotional adjustment of hyperactive adolescents have not received nearly the attention that more external, societal interaction measures have received. However, there is considerable evidence indicating that adolescence is frequently an unhappy time for hyperactive youngsters. Feelings of low self-esteem seem to be the hallmark of this period, with at least half of the group consistently reporting such feelings. This period is also noted for feelings of sadness or depression, as well as occasional thoughts of suicide. However, there is no consistent evidence for increased prevalence of severe psychiatric disorders among hyperactive adolescents, although this is sporadically reported, especially in early adult follow-up studies.

Weiss et al. (1971), Mendelson et al. (1971) and Stewart et al. (1973) all reported that feelings of low self-esteem characterized anywhere from 40 to 60% of their hyperactive samples in adolescence.[3] These findings represent both self-report data (Stewart et al., 1973) and psychiatric assessments (Weiss et al., 1971). Weiss and her co-workers noted marked sadness of mood and low expectations of future success among their adolescent hyperactive group. Similarly, Ackerman et al. (1977) found their hyperactive/LD boys to have significantly more problems with self-confidence, as measured by the Minnesota Counseling Inventory, than either normoactive/LD boys or controls. In line with these discouraging findings, Mendelson et al. (1971) reported that 15% of their sample had talked of or attempted suicide.

Once again, Huessy et al. (1974) reported findings more pessimistic than those of the other follow-up studies. They found that at the time of assessment 13% of their hyperactive sample had been hospitalized for psychiatric problems, compared with an expected rate for the state of .2%. Five of the sample of 75 were institutionalized in centers for emotional disturbances, 10 in state hospitals, and 2 in private hospitals. These findings of increased psychiatric disorders

appear to be more consistent with those follow-up studies which have looked at early adulthood (cf. Quitkin & Klein, 1969; Menkes, Row, & Menkes, 1967; Borland & Hechman, 1976), rather than with those follow-up studies of the adolescent period (Weiss et al., 1971; Mendelson et al., 1971; Stewart et al., 1973). In contrast to the findings of Huessy et al. (1974), Laufer (1971) found only 3 (5%) of 54 hyperactive adolescents to have required psychiatric hospitalizations, findings in line with those of the general adolescent population (cf. Offer, 1967). Thus, it appears that the area of psychiatric disorders among hyperactive adolescents has not been explored in enough depth to draw any firm conclusions. It can be concluded, however, that feelings of low self-esteem, sadness, and decreased ambition and expectations do appear to be a frequent problem for this population.

As the above review indicates, there is considerable evidence that although the primary symptomatology of hyperactivity may dissipate with increasing age, many secondary problems develop or worsen during adolescence. The hyperactive adolescent appears to be at risk for failing to complete school, as well as for legal encounters resulting from antisocial, aggressive acts. He also appears to have frequent feelings of sadness, low self-esteem, and lowered expectations of future success. Admittedly, most of these studies are subject to the problems typically associated with follow-up studies, including missing or inadequate control groups, poorly-defined outcome measures, as well as unreliable assessment instruments. Furthermore, among the varying studies reviewed there seems to be a heterogenity of populations employed, although the selection criteria employed are often inadequately defined. Few of the studies used objective selection criteria, such as scores on validated ratings scales (cf. Conners, 1969). Thus, as would be expected, there are inconsistent results across studies, with Huessy et al. (1975), for example, reporting generally pessimistic findings, whereas Laufer (1971) offers more positive ones. Nevertheless, despite these differences, one is struck by the

general similarity of results, with the hyperactive groups consistently showing more problems than either control groups or the population at large, when such comparisons are made. Furthermore, these communalities appear to hold up for each of the areas of academic, emotional, and societal adjustment, although as noted, there may be differences in the nature or degree of specific difficulties. In the follow-up studies of hyperactive adolescents this consistency of the findings may outweigh the methodological differences that exist, making it difficult to challenge the pessimistic conclusion offered by Ross and Ross (1976) noted earlier.[4]

Early Treatment and Prediction of Adolescent Difficulties

Although, as noted, there is fairly consistent evidence describing the difficulties prevalent in adolescence, there have been few studies demonstrating that any treatments are effective in either preventing these difficulties or ameliorating their effects once they have begun. Instead, what little research is available consistently suggests that treatment interventions during childhood, most notably drug treatment, no matter how successful they may be in reducing the hyperactive symptomatology, play little if any role in helping the hyperactive adolescent in his subsequent academic, emotional, or societal adjustment.

There is now a large body of research demonstrating that stimulant medication is effective in ameliorating the major symptoms of hyperactivity, including overactivity, distractibility, and impulsivity (e.g., Conners & Eisenberg, 1963; Knights & Hinton, 1968; Weiss et al., 1971). This statement appears to hold true regardless of whether observational data (Sprague, Barnes, & Werry, 1970) or rating scales (Conners & Rothschild, 1968) are used as outcome measures. Further, the effectiveness of stimulant medication has generally been demonstrated even in those studies which employed a rigorous double-blind methodology with placebo controls (e.g., Sprague et al., 1970).

Although stimulant medication has been consistently found to ameliorate the primary symptoms of hyperactivity, there is a growing literature suggesting that neither treatment with stimulant medication nor the nature of the child's response to the medication is related to outcome in adolescence. Minde et al. (1972) found that good vs. bad outcome in adolescence was unrelated to the duration of drug treatment. Similarly, Huessy et al. (1974) found no relationship between drug treatment and adolescent outcome, leading the authors to conclude "... this follow-up study gives little encouragement to the hope that temporary symptom control with medication alters prognosis" (p. 10). Similar results have been reported by Menkes et al. (1967). Weiss, Kruger, Danielson, and Elman (1975), comparing a group of children treated with methylphenidate for 3 to 5 years with a group treated with chlorpromazine and a group which received no medication, found no significant differences among the three groups on measures of delinquency, emotional adjustment, ratings of hyperactivity, nor on cognitive tests and measures of school performance. The authors conclude that methylphenidate was helpful in making the hyperactive children more manageable at home and school but did not significantly affect the outcome of the children 5 years later.

Taken together, these studies strongly suggest that drug treatment plays little role in determining the behavior of hyperactive adolescents along a wide range of outcome measures, including the areas of delinquency and emotional and academic adjustment (cf. Barkley, 1976a). This occurs despite the fact that drug treatment improves the primary symptomatology of hyperactivity (e.g. overactivity, distractibility, impulsivity, etc.).

Because a major goal of drug treatment is to normalize behavior, this failure to find a relationship between drug treatment and adolescent outcome has caused considerable surprise and consternation among researchers in the field (cf. Barkley, 1976b; Weiss et al., 1975). Weiss (1976) is representative of this

viewpoint: "Hence we have the rather paradoxical result that methylphenidate continues to be symptomatically effective, while not having significantly influenced such basic aspects as measurements of emotional adjustment, delinquency, number of grades failed, and so on. There is little doubt that methylphenidate made the children 'easier to manage' which in turn is likely to have produced some advantages for the children and their whole families, yet these were beyond the scope of our ability to measure them" (p. 131). Several explanations have been offered but none has been satisfactory. Barkley (1976a) discusses and then dismisses the hypothesis that this lack of a relationship is due to increased tolerance to the stimulant medication. Rie, Rie, Stewart, and Ambuel (1976) suggest that these discrepant findings may be due to the fact that the drugs cause the hyperactive children to lose their spontaneity and interest in their surroundings, so that they are less likely to benefit from future educational and environmental experiences. Such explanations are typical of the various hypotheses which have been offered in an attempt to reconcile these apparently paradoxical findings.

While a satisfactory solution to this paradox is not yet available, findings are beginning to appear which suggest another, possibly more promising avenue of investigation. Specifically, measures of aggressivity at referral and variables apparently related to aggressivity (e.g. pathological family interactions) appear to predict, to varying degrees, outcome in adolescence for hyperactive youngsters. For example, Weiss et al. (1971) found that ratings of aggression and family pathology at referral were significantly related to overt antisocial behaviors at follow-up. The three measures of family pathology were poor mother-child relationships, poor mental health of the parents, and punitive child-rearing practices.

Similar results were reported by Minde et al. (1972), who found that both ratings of aggression and the child's score on the Peterson-Quay conduct disorder factor at referral were significant predictors of outcome at follow-up. In addition,

in comparison to the good outcome group, the poor outcome patients tended to be characterized by such initial referral differences as higher ratings on most target symptoms, a positive history of brain damage, low initial IQ, low SES, poor initial mother-child relationship, and poor scores on ratings of the family environment. Although none of these measures individually discriminated between good and poor outcome, their combined use in a discriminant analysis resulted in a significant discrimination between the two groups.

Although Weiss et al. (1975) found no significant differences in outcome among their methylphenidate, chlorpromazine, and no-drug groups, they did find that within the methylphenidate group a good family diagnosis was significantly related to increased academic performance, positive emotional adjustment, and the absence of delinquent behavior. This suggests that outcome is partially a result of an interaction between the emotional stability of the family and drug treatment, a finding similar to those obtained by Conrad and Insel (1967) and Loney, Comly, and Simon (1975). Further documenting the relationship between family pathology and adolescent outcome is the significant positive relationship found by Mendelson et al. (1971) between fathers who had learning or behavior problems as children or had a history of police arrests and the level of antisocial behaviors displayed by their hyperactive children during adolescence.

Work done by Loney and her colleagues further documents the significant relationship between aggressive symptomatology and adolescent outcome, while failing to find such a relationship between hyperactive symptomatology and outcome. An initial factor analysis of a variety of measures of symptomatology at referral for 135 hyperactive/MBD boys had yielded two relatively independent symptom dimensions, an Aggression factor (control deficits, negative affect, aggressive interpersonal behavior) and a Hyperactivity factor (judgment deficits, hyperactivity, inattention) (Loney, Langhorne, & Paternite, 1978). Loney, Langhorne, Paternite, Whaley-Klahn,

Blair-Broeker, and Hacker (in press) then attempted to determine whether these two factors, as well as other measures at referral, predicted adolescent outcome. A series of multiple regression analyses were undertaken to find significant predictors of mother-rated symptoms at follow-up. Among the predictors making the greatest contribution to symptom variation at follow-up were SES, father autonomy-to-control, and the Aggression factor. More aggressive, lower SES boys with less controlling fathers at referral tended to have more severe symptoms at follow-up as rated by their mothers. Predictable follow-up symptoms included those relating to aggression, as well as those dealing with hyperactivity and judgment deficits. In contrast, the Hyperactivity factor was not found to be a significant predictor of adolescent outcome. Similar results were obtained when the dependent variables were ratings of symptomatology at follow-up made by the examining psychologist.

Paternite and Loney (in press), further analyzing these data, found that an indicator of aggressivity at referral was the single best predictor at follow-up for both Aggression and Hyperactivity factors obtained at follow-up. Thus, not only is there a predictable relationship between aggression at referral and aggression at follow-up but also between aggression at referral and hyperactive symptomatology at follow-up. In contrast, referral symptoms of hyperactivity only contributed significantly to one of the many regression analyses undertaken to predict symptomatology at follow-up.

To further clarify the role of hyperactivity and aggression in predicting adolescent outcome, it is helpful to look at data relating to self-esteem measures. As noted earlier, it has been widely reported that hyperactive children are at risk for the development of low self-esteem. This has frequently been attributed to their inability to control their sensory and motor functions, and the ensuing academic and interpersonal difficulties. However, Langhorne and Loney (in press) found that it was the degree of aggression at referral, not the degree of hyperactivity, which

significantly predicted self-esteem deficits at adolescence. Thus, a deficit widely reported to be present among hyperactive adolescents may not be due to the hyperactivity at all, but rather to aggressivity.

Synthesizing all of these predictor and outcome studies, a pattern emerges which may have important implications for the prevention and treatment of adolescent difficulties among hyperactive youngsters. Briefly stated, it appears that the degree of hyperactive symptomatology is unrelated to adolescent behavioral outcome. Instead, so-called secondary symptoms, especially the level of aggression demonstrated by the child, (as well as family interactions related to aggression) are apparently significantly related to adolescent outcome.[5] This hypothesis would begin to clarify some of the apparently confusing aspects of the earlier outcome research. Specifically, it would explain why drug treatment, no matter how successful in ameliorating the primary symptoms of hyperactivity (Barkley, 1976a; Loney, Prinz, Mishalow, & Joad, in press) plays little role in influencing adolescent outcome (cf. Weiss et al., 1975). This hypothesis also has important implications for beginning to identify hyperactive children who may be at risk for the development of adolescent difficulties. Specifically, it suggests that much of the effort spent on identifying and treating hyperactive symptomatology, as well as the considerable research devoted to predicting drug response (cf. Barkley, 1976b; Loney, Prinz, Mishalow, & Joad, in press) could be better spent in analyzing aggressive and environmental variables and their relationship to adolescent outcome. This is not to imply, however, that there is no place for stimulant medication in the treatment of hyperactive children. Drugs obviously do play a role in improving hyperactive behavior in the home and classroom. However, as Weiss et al. (1975) note, this appears to be the only role the drugs do play, and it may benefit the individuals who must interact with the hyperactive child more than the child himself.

The hypothesis that environmental and parenting variables may be more important than hyperactivity in determining the future outcome of hyperactive youngsters is congruent with the findings of follow-up studies of other populations at risk (cf. Kohlberg, LaCrosse & Ricks, 1972; Robins, 1966). Furthermore, investigations that focus upon family and environmental variables as major prognostic indicators would appear to offer more avenues for successful early intervention than would approaches that continue to concentrate on primary symptomatology and concomitant drug treatment.

It is not clear why aggression and similar "secondary" symptoms have not received the attention in hyperactivity research that they have in studies of other child psychiatric disorders (Kohlberg et al., 1972). Some of the early factor analytic studies found these two symptoms to load on the same dimension (Peterson, 1961; Quay & Quay, 1965). Perhaps these early results obscured the potentially independent role these symptoms may play. Other researchers have assumed that aggression is the end product of the hyperactive child's flawed interactions with his environment (cf. Wender, 1971; Loney, 1974), thereby downplaying the potential predictive utility of aggressive symptomatology. Whatever the explanation, previous researchers have not devoted much attention to the role of aggression in predicting adolescent outcome among hyperactive children, with primary attention instead being given to examining the short- and long-term effects of drug treatment.

One area that needs to be explored is the extent to which aggression among hyperactive adolescents has different antecedents and consequences than aggression among other adolescent populations. In other words, are those variables which predict poor adolescent outcome among hyperactives specific to this population, or are they the same variables which predict poor outcome in other populations at risk, thereby suggesting that the fact that this group exhibits hyperactive symptomatology is of only secondary importance. A possible answer to this question comes from the longitudinal study done on the island of Kauai (Werner & Smith, 1977). Three-fourths

of a group identified as learning disabled/hyperactive at age 10 was found to have a poor outcome at age 18, when compared with normal controls on a variety of achievement, interpersonal, and self-esteem measures. One-fourth of this LD/HA group was judged to be improved at age 18. The important finding, in terms of the present paper, is that those factors that differentiated improved and unimproved LD/HA children — parental consistency, firmness, and respect for the child, among others — were quite similar to the variables which differentiated improved and unimproved children who had behavior problems other than learning disabilities and hyperactivity. This would suggest that those variables which predict good or poor adolescent outcome for hyperactive children are not unique to this group but, instead, are important in determining adolescent outcome in general.

Footnotes

The authors wish to acknowledge the assistance of John Kramer and Mary Ann Roberts in the preparation of this manuscript.

[1]Several authors (cf. Wender, 1971; Loney, 1974) have made a hypothetical distinction between core or primary symptoms of hyperactivity and the secondary or resultant symptoms which are thought to arise from the hyperactive child's flawed interaction with his environment. However, few studies have been undertaken to validate empirically this concept of resultant symptomatology. In the present paper the terms primary and secondary will not denote any causal relationship. Instead, primary will refer to those symptoms traditionally used to diagnose hyperactivity (e.g., over-activity, distractibility, excitability), while secondary will refer to those symptoms occasionally associated with hyperactivity (e.g., aggressivity).

[2]The Weiss et al. (1971), the Minde et al. (1971), the Minde, Weiss, and Mendelson (1972), and the Weiss, Kruger, Danielson, and Elman (1975) studies are drawn from overlapping samples of hyperactive children, as are the Mendelson, Johnson, and Stewart (1971) and Stewart, Mendelson, and Johnson (1973) studies. Similarly, the Loney, Langhorne, and Paternite (1978), Loney, Langhorne, Paternite, Whaley-Klahn, Blair-Broeker, and Hacker (in press), Langhorne and Loney (in press), and Paternite and Loney (in press) studies are drawn from the same data pool.

[3]These data highlight the importance of having control groups for comparisons, since the incidence of neurotic symptomatology among adolescents is an area of dispute (cf. Weiner, 1970). Thus, for example, Masterson (1967) found 60% of normal adolescents to exhibit subclinical forms of anxiety or depression, a percentage comparable to those cited by Weiss et al. (1971), Mendelson et al. (1971), and Stewart et al. (1973).

[4]Recent work by Borland and Heckman (1976) has suggested that the adult outcome for this population may not be so dire. However, this is an area that is not well

investigated, and other adult studies paint more gloomy pictures (Menkes et al., 1967; Quitkin & Klein, 1969).

[5]This conclusion is similar to results obtained by Kellam and Schiffe (1967) in a longitudinal study of problem behavior among lower class black children. They found ratings of adaptational level (e.g. aggressive behavior) to be better predictors of later ratings of both adaptational and symptomatic (e.g., hyperactivity) ratings than were the symptomatic ratings. As Kohlberg, LaCrosse and Ricks (1972) note, one explanation of these findings is that adaptational traits exhibit greater environmental interactions than do symptomatic traits, so that the former are more likely to manifest the effects of environmental stability or instability.

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